PBBS - Packet Bulletin Board System from WDCG
Written For The IBM PC

Brought To You By:
Wake Digital Communications Group

Sysop's Manual

Version 10.06.85

10-06-1985

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PREFACE

This manual is a combination of past information from an old version of RBBS, some newer ideas from newer versions of RBBS and some of the needs and differences of Packet Radio. This manual is a **FIRST** effort to document all of the features, bugs, and usage of the Packet Bulletin Board System. Please send us your feedback so we can keep **PBBS** in a growing process.

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1.0 INTRODUCTION

This **PBBS** software is the result of many hours of work by several hams over the past year. With the rapid growth of Packet radio, just like the explosion of the personal computers, there is a need for users to communicate their needs, problems, etc. concerning their new hobby. Bulletin boards are a very practical, almost natural with packet, way to communicate.

When I first saw a QSO using a TNC, I knew that it was to be the coming thing. In the past year we have learned so much about this new and exciting facet of Amateur Radio. Having had a telephone BBS running for 2 1/2 years, I was anxious to get one started on packet because the telephone version has been a tremendous help to the computer community. I believed that it would be a great asset to the Amateur Radio community as well.

The **PBBS** software here has been a great help to our group and I look forward to customizing it even better to the needs of the Amateur community.

>>>>>------->> **THIS SOFTWARE IS PUBLIC DOMAIN** <<--------<<<<<

Please give it away as it has been given to you. Use it if you like and **PLEASE** feed back its good points, bad points, and your wish list of features. We want to improve this to meet as many needs as we can.

1.1 WAKE DIGITAL COMMUNICATIONS GROUP

The Wake Digital Communications Group - **WDCG** is a packet club that was formed around July/August of 1985 in Raleigh, NC. Although fairly small (about 30 people) in number, we knew, with packet, we were on the leading edge of a new form of communication and that much work had to be done in order to develop this "packet stuff" into a workable and highly reliable system of links and networks. One of our first projects was to start on our digipeater. With a little luck, we hope to bridge some of the gap between Virginia and South Carolina by year end. This will help link the East Coast together. One of our other projects was to get a BBS package out that not only met OUR needs but to share it and try to meet the needs of other packet clubs. We hope this software will meet some of those needs.

1.2 THE HISTORY OF PBBS

This version of Packet Bulletin Board System **PBBS** contains some revisions and new features, but the basic structure of the program is the same as it was originally written by Russ Lane and modified by Brad Hanson. Brad Hanson found it on the Dallas R/CPM\CBBS system and added many fixes and modifications. Some Members of the Capital PC Communication SIG have added several other enhancements beyond those added by Brad.

The newer versions of RBBS are far beyond the capabilities of this package, but many of the features, although invaluable to the telephone RBBSs, are useless or ludicrous to packet radio bulletin boards. (passwords and security are good examples).

Contributors to the **PBBS** software for packet and to this documentation are:

Original code conversion -

James Schoech	(WD4LHF)	of Boca Raton	- original Packet conversion
Frank Canova		of Boca Raton	- error handling & menus

Many feature changes and additions and continuing support -

Randy Ray	(WA5SZL)	of Raleigh, NC	- major feature changes
Will Harper	(K4IWW)	of Cary, NC	- feature input

These are some of the people that we got feedback from on our earlier versions -

Jim Hope	(K8YTE)	of Wake Forest, NC	- bug & feature feedback
Bob Johnson	(AA4L)	of Bay Leaf, NC	- " " "
Jerry Stuckle	(AI0K)	of Cary, NC	- " " "
Ed Stephenson	(AB4S)	of Cary, NC	- " " "
Cecil Tucker	(WA4LPD)	of Raleigh, NC	- " " "

These people write and support RBBS. Many ideas were obtained from the FINE work that they do -

Tom Mack	of Great Falls, Va.
Jon Martin	of Concord Ca.

There are many others that either directly or indirectly fed us input on the features and changes. I claim all responsibility and apologize to the ones that I have forgotten to name.

1.3 PBBS UPDATES CONVENTIONS

All revisions and versions will use simple numbering procedures. We use the date itself as a revision or version number. Example: 09.27.85 is the version number for the release of Sept. 27,1985.

2.0 RECOMMENDED MINIMUM SYSTEM CONFIGURATION

For **PBBS** the following equipment and software is recommended:

IBM PC or IBM PC XT

80 column monitor

Asynchronous communications adapter (serial port)

RS-232-C modem cable
Your TNC manual should tell you just how many pins your RS-232-C cable needs to be.

256K RAM (may work on 192k, but haven't tried it)

TNC (only tested with the HEATH HD-4040 TNC-1)
(will not work with Kantronics because no available way to get DCD.)

Two double sided drives (minimum)

PC-DOS 2.0 or above

2.1 OPERATING SYSTEM REQUIREMENTS

This **PBBS** code must run under DOS as a compiled program. It required the Basic Compiler 2.0 because of advanced commands used in the program.

2.2 COMMUNICATION BUFFER

PBBS is operated with a 4096 byte communications receive buffer. This helps buffer the data coming in to the **PBBS** from an ASCII upload only. If you are getting overruns from ASCII uploads, please feed this back to us. We may need to increase the buffer size.

Xmodem uploads and downloads have handshaking that prevents buffer overflows.

2.3 INSTALLING PBBS - GETTING STARTED

PBBS.EXE	--- The BASIC compiled code for **PBBS** version 10.06.85
CONFIG.BBS	--- The text file for the configuration of the **PBBS** machine

The 2 files above are the heart of the **PBBS** system. The CONFIG.BBS is especially important because it is the file that holds all of the options to configure the **PBBS**

NOTE - When editing CONFIG.BBS to suit your needs, save file in **ASCII TEXT**format with **NO TABS**

NOTE - Before running the **PBBS** system, the Sysop **MUST** change the settings of his TNC to **4800 baud, 8 data bits, NO parity, and 1 stop bit** . After these are set, the Sysop **MUST** perform a **PERM** to make this permanent **AND** a **RESET** to make the options valid. Failure to do this will (at the very least) not allow **XMODEM** file transfers to work.

The rest of the TNC parameters will be loaded by the **PBBS** code.

The Sysop is expected to be familiar with DOS and general operation of his TNC. This is, by no means, a program for the novice. I will attempt to put into some order, the steps taken to bring this program online.

1. READ THIS MANUAL!!! It isn't that long and may save you later frustration. Although I am not a documentation expert, and would hate to be, IF I CAN WRITE IT, YOU CAN READ IT.

2. Make backups of the original code. (especially CONFIG.BBS)

3. Get out your favorite editor. (If EDLIN IS your favorite editor, then that will work fine.)
   Edit CONFIG.BBS and change, at the very least:

   a. #25 - Sysop's logon "call" (your password). If you really like the word TJRAY, then use it. My dog will be proud.

   b. #26 - Sysop's first name. Chances are your first name ISN'T Randy

   c. #27 - Sysop's call. Chances are even better that your call is NOT WA5SZL-1. (The "-1" is used because I have 2 TNCs tied to the same radio, 1 for PBBS (WA5SZL-1) and 1 for me (WA5SZL).

   d. Your BEACON text (between the dotted lines)

4. You will probably want to also edit:

   a. BULLETO - The Bulletin Menu
   b. The Bulletins (BULLET1, etc.)
   c. WELCOME - The Welcome File

d. DIR - The Directory Index
e. LOGO - The System Logo File

5. Make sure you load your TNC with the 4800 baud, 8 data bits, etc. as in the NOTE above. You must do a PERM.

6. Make sure that entrys #10,#11,& #13 (in CONFIG.BBS) correspond to the drives you are using.

7. Make sure you have made the necessary modifications to your TNC, (if it is a TNC-1 or Heath H4040). The schematic is just after this section.

8. You are now ready to "bring-up" the **PBBS** code. Type **PBBS** and and press Enter.
You should see a brief message "Initializing PBBS", then the Function key menu.
At this point you will see the **PBBS** hesitate as it gets ready to initialize the TNC. (The program may start over in 1 retry cycle if it couldn't open the COM file cleanly the first time. Nothing to wory about.)
If all is well in the TNC to PC connection, you will see a message, "Intializing TNC" and many commands flashing on a line. These are the TNC commands that are being loaded from CONFIG.BBS to the TNC.
After the load is complete, AND if option #39 is YES, then a messages "MONITOR ON" will appear. Next will come the Beacon message to the sysop screen at the same time it is transmitting it to the TNC. This allows the Sysop to actually see what is being transmitted for a Beacon.
After a brief pause, the message "PBBS-PC is ready for...." will appear and the **PBBS** system is now operational.
You may press Esc and logon as a local sysop and "browse around". No one can log on while you are in local mode. When you quit (with the G(oodbye) command), the system will reinitialize and the beacon will transmit when the **PBBS** is ready for callers.

I hope this "startup" documentation has been helpful. Let me know if you have any problems.

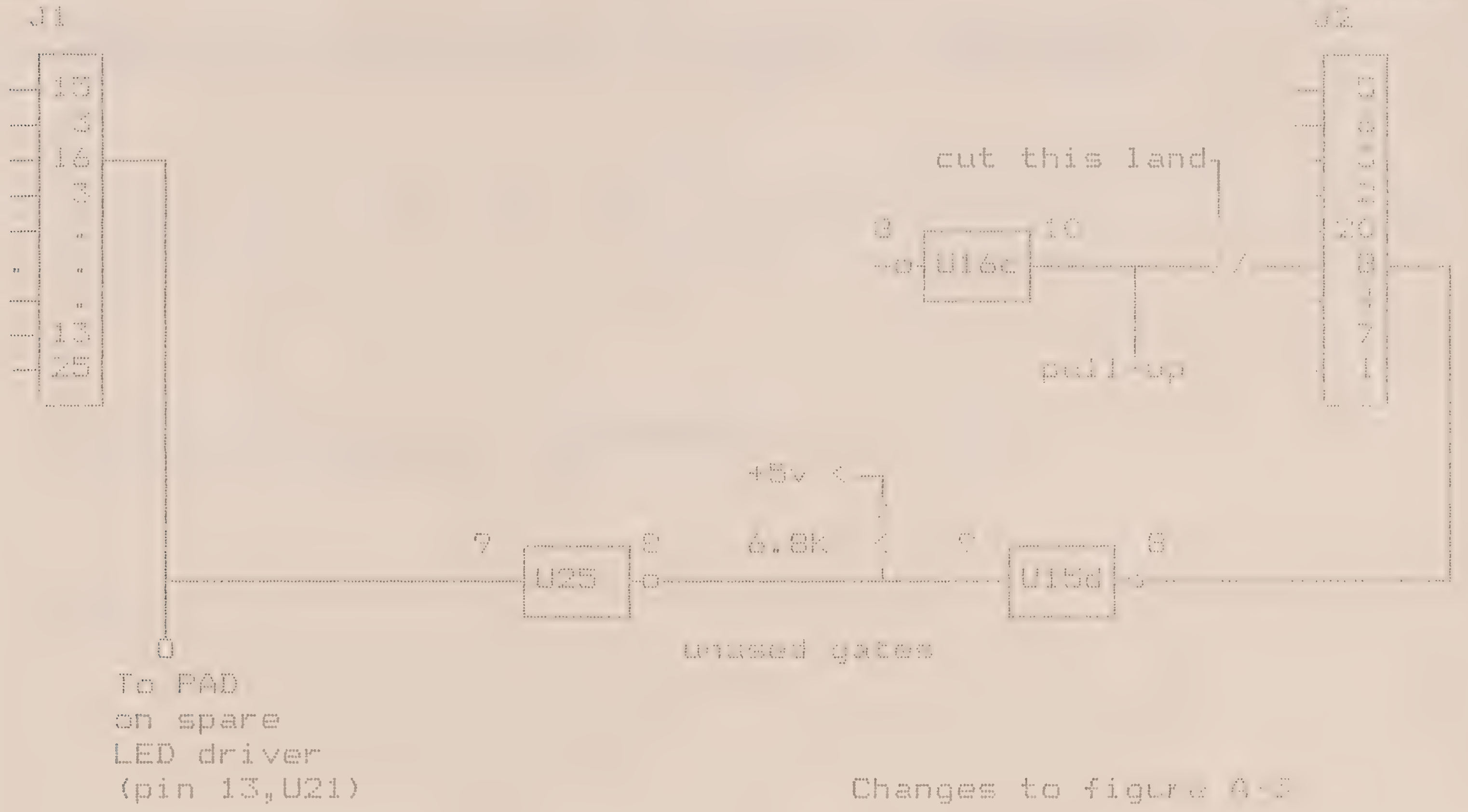
2.4 MODIFICATIONS TO THE TAPR (OR HEATH) TNC-1

This **PBBS** has been written to run on the **TAPR TNC-1**. Some modifications must be made to both the **TNC-1** and to some of the files before this program will work.

I understand that this modification has already been incorporated in the **TAPR TNC-2**.

TNC Modifications

The DCD line of the serial port has been modified to indicate when the TNC is in the "Connected" mode. Previously this line was always high. Add the wires and resistor between J1-16 and J2-8. The two inverters are already on the TNC and are not being used. Cut the land as shown.



Changes to figure A-3

(diagram courtesy of James Schoech WD4LH)

3.0 CONFIGURATION OF PBBS SOFTWARE FOR PACKET RADIO (CONFIG.BBS)

3.1 PBBS SYSTEM FILE DRIVE AND FILE NAMES (1-2,15-24)

Parameters 1, 2, and 15 through 24 allow the SYSOP to change the names of the PBBS system files. The SYSOP may use any valid DOS 2.0 filename for these files.

3.2 PBBS TEXT FILE DRIVE AND FILE NAMES (3-9,28-33)

Parameters 2 through 9 and 28 through 33 allow the SYSOP to specify the diskette his text files are going to be located on. Additionally, these files may be given any valid DOS 2.0 file name.

3.3 DRIVES AVAILABLE FOR DOWNLOADING (10)

Parameter (10) specifies the letter of the drives from which files can be downloaded. The order in which they are specified is the order in which the drives will be searched. If the order is BAC, then drive B will be searched first for the file, then drive A, and finally drive C. While there can be duplicate files on each of the drives, the first file found, will be the one downloaded to the user.

3.4 DRIVE WITH PBBS SYSTEM FILES (11)

Parameter 11 specifies the letter of the drive which is to contain the PBBS system files. Although changeable by the Sysop the PBBS system files, as they are shipped to you are :

USERS
USERS.BAK (backup of users file)
MESSAGES
MESSAGES.BAK (backup of messages file)
CALLERS
COMMENTS

LONGCALR
LASTUPLD

(see options 1,2, and 15 through 24 to change file names)

These files can not be downloaded by anyone and are described as follows:

3.4.1 USERS

The users file is a random access file that has a record for each user that uses the system. The record contains a profile for the user that includes the users first name, call, password (which probably won't be used) , city, state, type of machine, the last time and date signed on, the last message read, the number of times signed on, the state of the expert, line feed, prompt, lockout flags, and page length. The records are 128 bytes in length and are automatically maintained by **PBBS** . The SYSOP can do some limited editing using function 8. To initialize the system simply ERASE this file. If **PBBS** does not find the file on the system it will create it. Because of the fixed length records in this file, it should not be created or edited outside **PBBS** . When the SYSOP "packs" the user file, the file USERS.BAK is created to hold the old users in case the "pack" is unsuccessful (i.e not enough space to duplicate the users file). If the disk fills up during the pack function **PBBS** will recover the USER file with USERS.BAK.

3.4.2 MESSAGES

This file is a random file that contains the message text for the **PBBS** system. The first record in the file contains the number of the last message entered, the Sysop available flag, the printer active flag, and the operator page on/off flag. It is used to find the next message number when a new message is added to the system. The rest of the file consists of message header records which are followed by the message text for that header.The headers are linked through forward relative record pointers that are also used to determine the number of text records for the message. The header contains the message number , from, to, subject, password (^READ^ if a private message - which can be entered by a user as a password!), date, status and pointer. The status can be either active or killed. Killed messages are retained until either they are recovered or the file is packed by the SYSOP. If **PBBS** does not find the MESSAGES file it will create it and initialize it with no messages. Because of the fixed length records in this file, it should not be created or edited outside **PBBS** . When the SYSOP "packs" the message file, the file MESSAGES.BAK is created to hold the old messages in case the "pack" is unsuccessful (i.e. not enough space to duplicate the message file). If the disk fills up during the pack function **PBBS** will recover the message file using MESSAGES.BAK.

3.4.3 CALLERS

This file is a file that contains a log of all callers as they signon the system along with their path that they used to connect to the **PBBS** The names are added to the end of the file. If the file is not found **PBBS** will create a new one.

3.4.4 COMMENTS

This file is a sequential text file that contains any comments that have been left by users for the SYSOP. The file can be scanned by a SYSOP function or it can be TYPEd or edited outside the RBBS system. A SYSOP function is available to delete this file, or it can be emptied outside of DOS. While the file will be created by **PBBS** if it is not found, it is recommended that an empty file be present at all times.

3.4.5 LONGCALR

Contains a log of any caller whose session was longer than Maximum Time On System. (CONFIG.BBS parameter # 20) This file is appended to and will be created if not found on the system.

3.4.6 LASTUPLD

Contains the file name, date, and user that uploaded the last file to the **PBBS** . This file is used by the Beacon message (if option 41 is YES) to show this information. It is shipped as a BLANK 3 line file and until an upload occurs to your &pbbs, will be ignored by the Beacon.

The main **PBBS** text files are:

WELCOME
BULLET0 (see description below)
BULLET1
BULLET2
BULLET3
BULLET4
BULLET5
BULLET6
NEWUSERS
HELP01
HELP01.F
HELP01.T

HELP01.M
HELP01.N
HELP02
HELP03
HELP04
HELP05
HELP06
HELP07
DIR

These files can be downloaded by anyone and are described as follows:

3.4.7 WELCOME

This is a text file that is printed when a user first enters the system. It must be present, and it should be modified to identify your system.

3.4.8 BULLETO

This is a text menu file that is printed following the WELCOME file, if parameter 34 is set to YES, when a user first enters the system. It must be present, It can also be called from the main menu with the <B>ulletins command. You may have from 0 to 6 bulletins. Bulletins are good for keeping news about your club or changes to your system. Any new information that you need to show the user should be in a bulletin.

BULLET1 - First bulletin file referenced in the BULLETO file.
BULLET2 - Second bulletin file referenced in the BULLETO file.
BULLET3 - 3rd bulletin file referenced in the BULLETO file.
BULLET4 - 4th bulletin file referenced in the BULLETO file.
BULLET5 - 5th bulletin file referenced in the BULLETO file.
BULLET6 - 6th bulletin file referenced in the BULLETO file.
NEWUSERS - Text file that is displayed for new users
just before going to the main message menu and prompt.

3.4.9 HELP01

Text file that is printed when <H>elp is requested at the main function prompt. It contains command information.

HELP01.T, HELP01.P, HELP01.M, & HELP01.Nare extensions of the HELP01 file.

3.4.10 HELP02

Text file that is printed when a <?> is entered on the main function prompt. It is also printed following the NEWUSER file for new users and tells users what functions the **PBBS** supports.

3.4.11 HELP03

Text file that describes the message protection options when <?> is entered after the message <E>nter command is executed at the main message menu.

3.4.12 HELP04

Text file that describes the message entry subfunctions when <?> is entered at the subfunction prompt.

3.4.13 HELP05

Text file that is printed when <H>elp is entered in the filing subsystem function prompt.

3.4.14 HELP06

Text file that is printed when a <?> is entered in the filing subsystem function prompt.

3.4.15 HELP07

Text file printed when <H>elp is requested at the message read prompt.

3.4.16 DIR

Parameter 12 specifies the name of the text file describing the names of the directory files that contain the description of the files available for downloading. At least one DIR file has to be present on one of the diskettes available for downloading. Sub directories, (not to be confused with DOS subdirectries), should be numbered and should be reflected in the DIR file.

(see USING MULTIPLE FILE DIRECTORIES)

3.4.17 CONFIG.BBS

This is an ASCII text file that keeps all of the options for the **PBBS** system as well as the TNC configuration initialization It is read by **PBBS** to determine the configuration settings tailored to your **PBBS** .

3.5 MAIN FILE DIRECTORY (12)

This option is the name of a file that is the main file directory. (See "USING MULTIPLE FILE DIRECTORIES") This file contains a "menu" to all of the sub-directories in the **PBBS** for downloading (and uploading, if the Sysop permits).

3.6 DRIVE AVAILABLE FOR UPLOADING (13)

This parameter (13) specifies the letter of the single drive available for uploading files to. When a file is uploaded, the file, specified by parameter (14), will be automatically updated with the file name, file size, date of upload, and short description as specified by the user.

3.7 NAME OF DIRECTORY TO UPDATE FOR UPLOADS (14)

Parameter # 14 of the CONFIG.BBS is the name of the directory into which they want to record the file name, file size, and file description of files they upload to **PBBS** . The default name is DIR99 and it must be a text file on one of the diskettes available for uploading.

3.8 SYSOP'S LOCAL LOGON "CALL" - PASSWORD (25)

This is a password that the Sysop assigns himself to be able to log on the system in local mode as the Sysop. After the Sysop presses the ESC key, the **PBBS** will ask for his "CALL". The Sysop enters the password as his call, the **PBBS** will recognize this logon as the Sysop and let him enter the **PBBS** locally with all Sysop privileges.

3.9 SYSOP'S FIRST NAME (26)

Obvious. This is the Sysop's first name

3.10 SYSOP'S CALL (27)

This is the Sysop's true call. It is used to identify him should he leave any messages for other users during his local mode logon.

3.11 MAKING SYSTEM BULLETINS "OPTIONAL" (34)

The Sysop has the option of automatically displaying the BULLETIN menu to the user upon logon. This has both pros & cons. The pro is that you can make some announcements in the bulletin menu that the user has to see when he logs on, such as latest changes to the PBBS, meeting announcements, etc. The con is that it is one more thing that has to be displayed before he can get to the messages or download/upload files.

Our philosophy here is that if to sysops disagree on a procedure, make

it an option.

3.12 TIME BETWEEN BEACONS (35)

This is the time, (in minutes), set between BEACON messages. Remember that the more you show in your BEACON message, the more careful you should be to how often you transmit it.

3.13 MAXIMUM TIME ON SYSTEM (36)

This is the time limit, (in minutes), set by parameter 36 to set the maximum time allowed for one user session.

3.14 OPEN OR CLOSED PBBS (37)

Although not fully tested, because it is not used much, the Sysop has the option to make the **PBBS** a "closed system" (heaven forbid). This forces the users to have passwords (that everyone on the air can see), to log on to the system. Lets hope no **PBBS** station has a need for this one & I'll probably remove it in a future release.

3.15 COMMUNICATION PORT TO BE USED (38)

Parameter # 38 requests the user to specify the communication port that **PBBS** will be using in order to determine if it is device COM1 or device COM2.

3.16 PBBS TO MONITOR PACKET TRAFFIC (39)

This is an option for the Sysop to specify that the TNC will come up in MONITOR ON mode when **PBBS** is started. He may then toggle it on/off with the function keys.

3.17 MAXIMUM TIME TO WAIT WITH NO USER INPUT (40)

Before the TNC-2 was released, any user could just power his connected TNC off and leave the PBBS TNC in a connected state FOREVER! With this parameter, the Sysop can specify how long it will wait with no input from the keyboard before it will disconnect from the user. Uploading and Downloading will not be affected by this.

3.18 BEACON MESSAGE PARAMETERS

3.18.1 Last Upload, Date, & User in Beacon (41)

With version 09.27.85 of the PBBS code, the Sysop can BEACON the last uploaded file, the date it was uploaded, and the user that uploaded it. This , along with the outstanding messages option, will put information into the BEACON message that can cut down on the PBBS traffic when a user wants to logon just to see "what's new" in the file section.

3.18.2 Show Time & Date in Beacon (42)

The time & date can be shown APPENDED to the FIRST line of the BEACON message with this parameter.

3.18.3 Show PBBS Version in Beacon (43)

The PBBS current version can be shown APPENDED to the LAST line of the BEACON message with this parameter.

3.18.4 Show Outstanding Messages in Beacon (44)

Version 09.27.85 of the **PBBS** code has the capability to display ALL outstanding messages to the users, in the BEACON message. The Sysop can turn this feature on and off with this parameter. If he chooses to turn it on, all messages addressed to the USERS, (except messages for "ALL"), will be scanned and the user's call will be placed in the BEACON message. The output will look like this:

```
I have messages for the following:
WA5SZL,K8YTE,K4IWW,
```

Up to 20 DIFFERENT users will be posted. No matter how many messages he has outstanding, the user's call will only be posted once. If their are no messages, (other than messages to "ALL"), no "outstanding message" output will be in the BEACON.

This information about the outstanding messages will be displayed in line 2 thru line 2*(users/5)+1. This all means that the 2nd line of the BEACON will show "I have....." and starting with the 3rd line, the user's will be listed 5 across. Then there will be a blank line added.

If you need more than 20 positions for user's calls, let us know and it can be increased.

This, along with the display of the last uploaded file option, can put information into the BEACON message that can cut down on the **PBBS** traffic when a user wants to logon to see what messages he has outstanding.

3.18.5 Unprotocol Text (BEACON)

This option will be set to "BEACON" most of the time but if a sysop wants to beacon THROUGH a digipeater, he might set the Unprotocol to "BEACON via WA5SZL" This gives the sysop the ability to use any Unprotocol setting for a beacon.

3.18.6 First & Last Text Lines in Beacon

This option lets the Sysop state his FIRST & Last line in the BEACON message. Other options let him append to these lines.

3.19 MAXIMUM NUMBER OF ACTIVE MESSAGES ALLOWED

The maximum number of ACTIVE messages has been preset to 50. This can be changed when compiling the **PBBS** source code. If you need to have more ACTIVE message space available, please feed this back to us.

3.20 NUMBER OF SYSTEM BULLETINS

This has been set to 6. If you need the option for more, please feed this back to us.

3.21 ECHO USER SESSIONS ON SCREEN (SNOOP)

SNOOP is automatically turned on in the **PBBS** . It echoes what the user sees on your PC's screen. This function can be changed at the keyboard.

3.22 TNC PARAMETERS

There are some initialization parameters at the end of the CONFIG.BBS file that are used to "set up" the TNC for the **PBBS** to use. We hope these have been optimized for good **PBBS** operation.

NOTE -Several TNC parameters have been set to optimize the use of the channel and make the **PBBS** operate in a somewhat "background" mode.

Some of TNC command settings that we use to put the **PBBS** in a "background" operation are as follows:

DWAIT is set to 15 to force the **PBBS** to wait 15*40ms after the last transmission it "hears" before it transmits. This, along with the fact that all the "packeteers" in our area run DWAIT of 0, forces the **PBBS** to wait until the channel is quite free before it transmits.

FRACK is set to 10 for 2 reasons. Because DWAIT is set high and the **PBBS** is , for all practical purposes low priority, then the time between retries should be set high to keep from timing out too early and to allow more important traffic on the channel.

MAXFRAME is set to 1 to keep multiple frames from having to be retried in case of errors or collisions.

PACLEN has been set to 132. This is the length of an xmodem packet. We tried several settings from 50-250 for packet lengths and have found that 132 seems to be the best. If you find this to be different, please let us know.

RETRY We set retry to 15 because with DWAIT set high (15) and FRACK to 10, we expect retry count not to have a very detrimental effect on the channel, so set it high (10).

Most of the time the **PBBS** is in CONV mode. Only during ASCII uploads and xmodem transfers is the **PBBS** in TRANS mode. ASCII uploads are in TRANS mode because if someone tries to connect to the **PBBS** while a user is uploading a file, the "connect request from ...." message gets inserted into the uploaded file. The only way to turn this off is to run in TRANS mode. Xmodem transfers need to be in TRANS mode because of their protocol.

Please feel free to play with the TNC parameters. If you find a setting that better optimizes the **PBBS** operation, PLEASE let us know.

4.0 USING MULTIPLE FILE DIRECTORIES

With the advent of **PBBS** 09.27.85, multiple file directories for downloads are possible. A file directory is simply a text file that the SYSOP has created that has a one-line entry for each file available for downloading in the format:

file name extension x,xxx mm-dd-yy description

that associates a date, size and description for each file name/extension. Their has been great effort made to not force any rigid naming conventions or format on the file directories on the theory that each SYSOP should be free to tailor his **PBBS** to his own tasks. However, there are a few conventions regarding download directories. They are as follows:

- o The file directories must be text files.
- o The file directories must have the first three characters of their name designation equal to **DIR**(the remaining suffix can be anything you want as long as it is a valid DOS file name.
- o Their is only one file directory for uploads and it must be on the disk drive designated for uploads.

Most SYSOP's tend to organize their file directories according to subject. The primary file directory usually tells how you list the other directories. Logically, it looks like a tree structure as follows:

```
                              DIR
                               :
                               :
    --------------------------------------------------------------
    :      :      :      :      :      :      :      :      :
DIRaa  DIRbb  ........................................DIRzz
```

The suffixes aa through bb can be anything you want. Most uses use numbers (i.e. DIR1, DIR2, etc.). The command L;2 would list directory 2.

The SYSOP has the option of letting his users know the name of the file directory for uploads. Some SYSOPS do and some don't.

5.0 SYSOP FUNCTIONS

The SYSOP functions are not described in the HELP files, so the following narrative will shed some light on these functions. The SYSOP functions are available at the main system function prompt. These functions are not available to the general user, and it should be noted that the SYSOP should not use some of the user functions either because the code will not work right if called from the main console, or the function is not for use by the SYSOP. Such functions are the <O>perator, <PW> password, and file upload/download using XMODEM. File download using ASCII can be used to "type" files available for download so they scroll across your screen. File upload enables you to create files from the keyboard.

5.1 SYSOP MODE

To enter the SYSOP mode press the ESC key locally. After he enters his "call" (password specified by parameter 25), the following operations can then be performed by entering a number only at the command prompt:

5.1.1 - Type Comments File.

The contents of the COMMENTS file is displayed. This file can also be inspected using a TYPE command from DOS. It is a ASCII sequential text file.

5.1.2 - Type CALLERS File.

A log is maintained of all persons who have called the system. This function will list the file showing the users name and the path that he connected to the PBBS with.

5.1.3 - Pack MESSAGES File.

The message file contains all messages for the **PBBS** system. As messages are killed they are only flagged as inactive. This function should be used periodically to recover the space occupied by the killed messages. A summary of the space recovered will be printed when the pack is complete. After completion, only the text of active messages will be present and the old file will remain on the system with the name of MESSAGES.BAK. Also, you will need enough free disk space for the MESSAGES and MESSAGES.BAK files when packing the MESSAGES file or the packing cannot be performed; if enough space is not found the packing will abnormally terminate and the MESSAGES file will be recovered.

5.1.4 - Renumber the Messages.

This function permits messages to be renumbered sequentially starting from a specified message using whatever starting number you wish. Please note that there is not much error checking to be sure that the new numbers do not duplicate those of lower numbered active messages. When complete, the next message to be created will be the next higher number from the resequence.

NOTE - When the Sysop renumbers, each user's "last message read" entry in their profile is NOT updated, therefore the pointer will not be accurate until they sign on again and read the messages. Use renumbering only when necessary.

5.1.5 - Resurrect a Message.

This function will return a message that has been killed to an inactive state. If function 3 has been used, the killed messages are no longer recoverable. The function will ask for the message number to be recovered.

5.1.6 - Print Message Headers.

This function will display the message headers of all messages, active and killed, that are present in the message file. This is useful to obtain the message number for use with function 5.

5.1.7 - Erase the Comments File.

This function will erase the comments file by creating an empty file. This could also be done from DOS by a: 'COPY CON: COMMENTS' command followed by a 'F6' key to create a empty file.

5.1.8 - USERS File Maintenance.

The users file contains entries for each user registered with the system. This function permits the SYSOP to list the file on the display, print the file on the printer (LPT1:) or to perform limited editing of the user file records.

In <M>odify mode the following subfunctions are available:

D - Delete the user from the users file.

N - New password. Permits the SYSOP to change the password for the user.

L - Toggle user lockout . This will toggle the status of the lockout flag for the particular user. If the lockout is set the user will be logged off the system as soon as the user name is checked. A second <L> will clear the lockout flag.

P - Toggle the printer flag to print entries on the printer.

M - Return to the <M>ain menu or function prompt.

F - Find User. Permits the SYSOP to locate a user by entering the users name.

- . This option lets the sysop search for a user by number.

In <M>odify mode a record will be displayed followed by a subfunction prompt for action. To get to a specific record the record number can be entered at the prompt and if valid that record will be displayed. If the record number is invalid or an empty c/r is entered then the next record in the file will be displayed.

5.1.9 - Toggles the Operator Page Bell On/Off.

This option allows the sysop to toggle the speaker used for paging him by the user logged on. It prints to the sysop screen. "sysop is available" or "sysop is not available".

This can also be done with the function (F8) keys.

5.1.10 - Pack USERS File.

This removes deleted users. You should have enough free disk space for USERS and USERS.BAK or the packing will abnormally terminate (the USERS file will be restored).

5.2 SYSOP FUNCTION KEYS

The following function keys (ten keys on left side of keyboard) are designed to give the SYSOP special local controls that can be actuated without entering the SYSOP mode (using the ESC entry key).

F1 - Return to DOS. This will terminate a session if a caller is on-line.

F2 - Return to BASIC. This will also terminate a session. This returns to DOS under the compiled version.

F3 - Printer Toggle On/Off. This changes the printer on-line status. When on-line the printer will print callers names and file names uploaded/downloaded. It will also print all error messages except the ERROR 68 used to check that a file exists. This function should match the condition of the printer. If the printer is going to be left off, the PRINTER toggle should be left off.

F4 - Operator Page Toggle. This changes the status of operator annoy and records the change to the top of the MESSAGES file. This is set by the CONFIG program parameter # 6 which establishes the SYSOP's office hours.

F5 - Beacon Toggle - This toggles the BEACON message on/off. When toggled on, the BEACON is sent immediately and thereafter what ever parameter 35 (in CONFIG.PBB) is set to.

F6 - Monitor Toggle - This toggles the between MONITOR ON and MONITOR OFF to allow or disallow unconnected channel traffic to be shown on the sysop's screen.

F7 - Reserved for Future Use (to be announced)

F8 - Sysop Available Toggle. This changes the status of operator available and records the change to the top of the MESSAGES

file. Off returns "Sysop not available" to the caller.

F9 - SNOOP Toggle. This changes the SNOOP from the default value the first time it is pressed and toggles it on/off thereafter. SNOOP off clears the screen and turns the cursor off. It also keeps the download beeps from sounding. The SNOOP should be left off for normal use to keep the system startup screen from "burning into" the monitor. If the SNOOP is left on, the monitor should be physically turned off except when you are observing the **PBBS** in action. Leaving the monitor off will not affect performance of the **PBBS** .

F10 - This is the Forced CHAT Switch. It announces your forced chat and who you are before turning the keyboard over to you and the caller. Along with the ESC key (which ends the chat mode) this is the same key you use to answer a page.

This function key is also used by the sysop to use the **PBBS** software for a terminal emulator while it is disconnected. He may press F10 and go into CHAT mode and then make a connection with other user's as a standard terminal. This prevents a sysop from having to bring down &pbbs, load a terminal emulator, and proceed with normal packet radio.

Esc - The Esc Key is the Special SYSOP Key. It allows the SYSOP to takeover for system maintenance when no one is on-line.

The SYSOP can also enter commands on the command prompt line while a caller is on-line. The command entered will cause the system to respond just as it would had the caller entered the command. This should be used with caution because it could confuse a new system user -- users are often timid enough without knowing that big brother is actually watching them! Let the caller page you then tell him that you can assist with commands if he gets into trouble.

6.0 LIMITED WARRANTY

The **PBBS** program is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose.

7.0 HOW TO OBTAIN NEW RELEASES OF PBBS

At the present time there are three (3) ways to obtain new releases of **PBBS** code. These are as follows:

1 - On Compuserve (CIS) under the HAM/PACKET SIG will be the latest release of **PBBS** . You may download it whenever it changes. Please feedback to us.

2 - You may get it from **WDCG** . Because of the cost to do such, we request that you send us the following:

A. A diskette
B. A self addressed, STAMPED mailer.
C. FEEDBACK -- FEEDBACK -- FEEDBACK
D. NO MONEY

Please put stamps on the return mailer and don't send us the money for the stamps.

Mail diskette to:

Randy Ray WA5SZL
(PBBS)
9401 Taurus Ct.
Raleigh, NC 27612

Oh, yes.....tell me what version you are running at present.

3 - The 3rd way to get this is from someone else. This may be a **PBBS** or telephone BBS or from a local Amateur Packet Radio Club in your area.

However you get it, please feed back to us on your use, your unique needs, and bugs.

ENJOY PBBS AND PACKET RADIO

8.0 NOTES ON REVISIONS OF PBBS

09.27.85 - First release of **PBBS** code
No known bugs. (hi..hi)

10.04.85 -

1. Moved initial BEACON to be last function performed before setting CONOK ON.
2. Put version number in early part of logon so the user will know what version the PBBS he is connected to is.
3. Added timeout routine to TNC load routine in case TNC hangs during load. Retries command 3 times
4. Added COMMENTS & LOG files to the list that a user CANNOT download.
5. Speed up entry and exit to CHAT.
6. Speed up function key action (MONITOR & BEACON TGL)
7. Fixed typo ("verifiedlock") in xmodem transfer
8. Removed "reset dependant" or useless commands from TNC load (CONFIG.BBS).
9. Put Beacon text to sysop's screen when BEACON occurs (will be an option in a later release)
10. Upload using "/" in description DOES NOT was getting put into LASTUPLD file, fixed.
11. If NO messages, initialization does not hang, now.
12. Added option for NS (no stop) when listing long files to user screen.
13. Relaxed xmodem timeouts and retrys to cope with heavy traffic on frequency.
14. Log more specific errors as to the nature of their cause.
15. Fixed "no input from console" timeout
16. Changed routines using Ctrl-S to Ctrl-W (to wait) because TNC uses Ctrl-S to pause his own terminal output.
17. Added more documentation to "Installing PBBS" to help bring it up more smoothly.

18. Fixed various documentation errors and typos.

19. Various cosmetic fixes to code.

9.0 PBBS FUTURE DIRECTION

Future Direction includes but is not limited to :

1. Feature to search for ALL NEW uploads since last sign-on or date entered.
2. Looking into store-and-forward. Something like (if not completely compatible with) WORLI mailbox.
3. Different binary download/upload protocols. We need a much simpler, made for packet, binary protocol. Xmodem is to redundant.
4. Ability to let transceiver switch to another frequency to upload/download files in order to keep the original frequency as clear as possible. It would work like the voice nets now work. If a user connected, was local (not through a digipeater) and traffic was above a set level, the PBBS would request they change frequencies to allow upload/download. When the QSO finished, the PBBS would return to the original frequency.
5. Ability to "monitor" amount of packet traffic on the original frequency. This knowledge could be used in a decision process to allow the PBBS to limit certain functions of the PBBS until traffic had fallen below that level. For instance: upload/downloads could only occur when the traffic level was below 10 transmissions a minute (or whatever the Sysop judged suitable).